

Town of Lexington Sustainable Action Plan



Presented by
The Sustainable Lexington Committee
to
League of Women Voters
First Friday Forum
November 1, 2019

Introduction

9:30 – 9:45: Background and Sector Overview

9:45 – 10:30: Interactive Sector Discussions and Prioritization

10:30 – 11:00: Reporting out from each Sector and open discussion



Background

Massachusetts



- ***Climate Change is Here!***
- In March 2014, the Intergovernmental Panel on Climate Change issued its Fifth Assessment Report.
- The Northeast has recently experienced a greater increase in extreme precipitation than any other region in the United States.
- Massachusetts's summers could be as warm as South Carolina's by the end of this century.



Overall Goals

Overall Goal:

Improve the ongoing quality of life and desirability of living and working in Lexington by addressing long-term sustainability and economic viability while responding to the impacts of climate change.

Mitigation:

Make Lexington a Net Zero energy (emissions) community.

Adaptation:

Provide essential services for 10 days following an extreme weather event.



Benefits

Sustainable initiatives to date have demonstrated the ability to deliver millions of dollars in savings, revenue and other benefits to the Town while substantially reducing Lexington's GHG emissions.

Municipal Rooftop Solar (2014)



- Reduces CO₂e emissions by 725 metric tons
- Annual energy savings of \$150,000

Hartwell Solar Installation (2017)



- Reduces CO₂e emissions by 1,575 metric tons
- Annual energy savings of \$350,000

Hasting Elementary School (2020)



- **NET ZERO** goal
- With other buildings in current roll out, \$300,000+ in savings per year and 2,201 metric ton CO₂e reduction!

Community Choice Program (2017)

- **100% Green:** 100% renewable energy.
- **New England Green:** 100% New England projects
- Over \$3 million savings to Lexington residents over the past 26 months – compared to Eversource basic service.



What is Sustainability?

Create a holistic view of the many ongoing activities that impact Lexington's sustainability and response to climate change



Approach

The Sustainable Action Plan provides a structured approach to identify, prioritize, and implement future opportunities for similar actions.



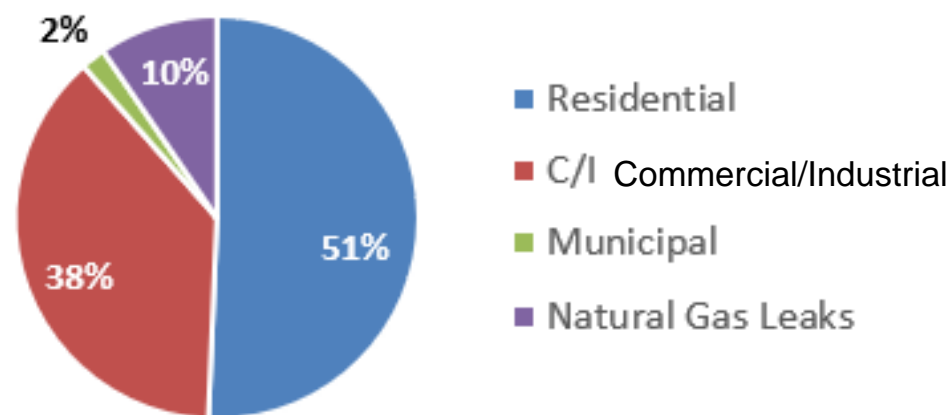
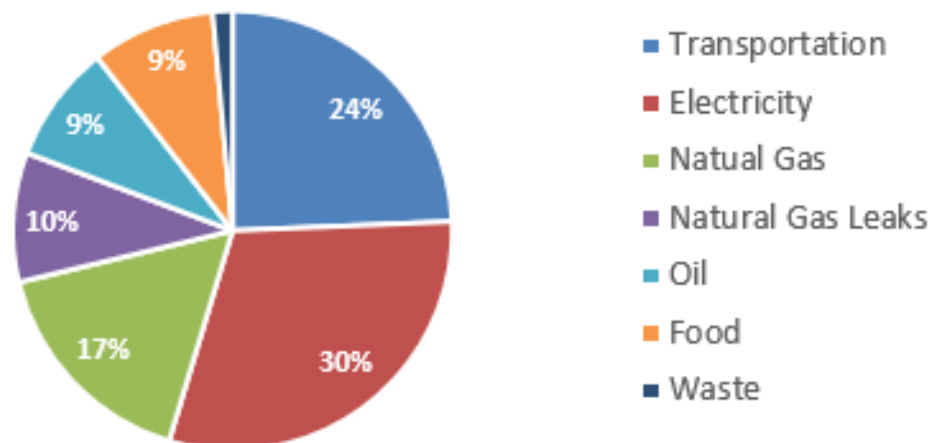
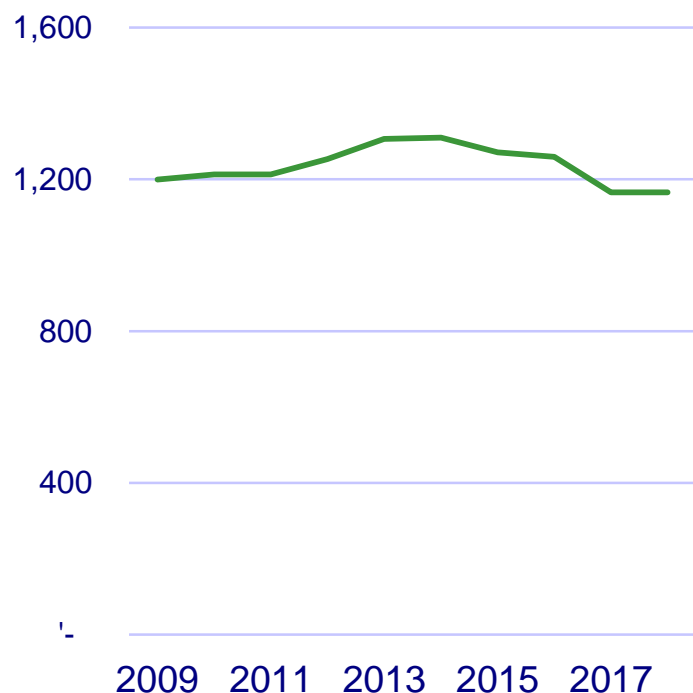
Priorities

- What areas have the greatest impact?
- What's most important to our health and safety?
- What can we control?



Emissions Priorities

Town of Lexington CO2
Emissions
(Millions of lbs)*



* Does not include CO2 emissions from air travel or goods/services purchased by residents or municipal employees



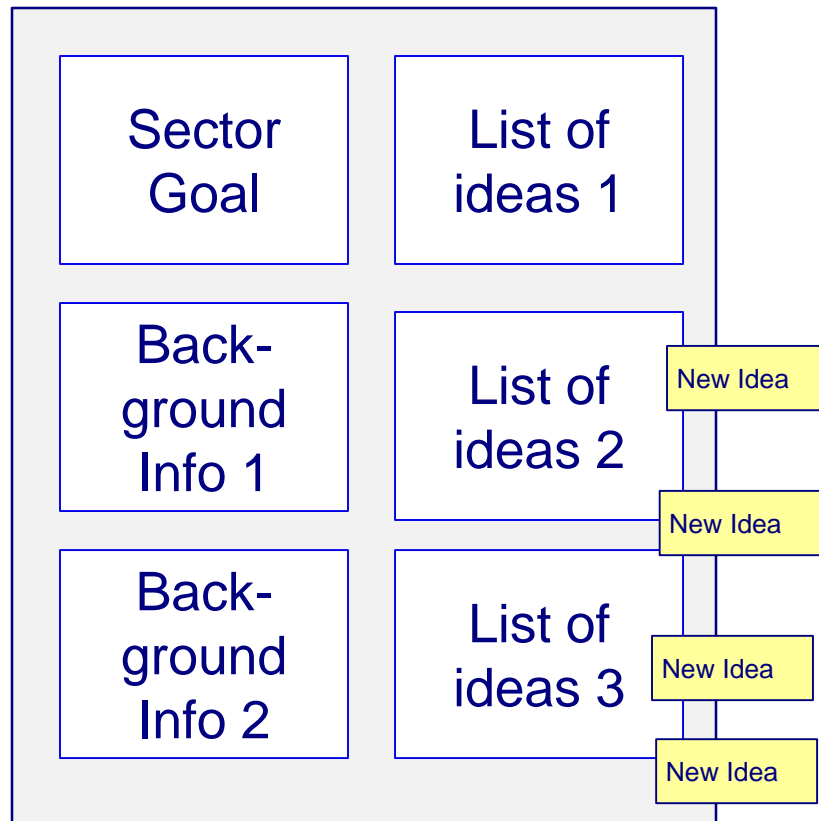
Interactive Discussion - 1

- Posters have been set up for each Sector with Goals and initial Project/Program Ideas.
- Please visit each one and discuss the Sector Goals and Ideas with the representative and your neighbors.



Interactive Discussion - 2

Flip charts have been set up for each Sector.



- **Sector Goal:** From the Sustainable Action Plan.
- **Background Info 1 and 2:** Information about the Sector.
- **List of Ideas 1, 2, 3:** Sector ideas developed previously.
- **New ideas:**
 - Fill out a Post-It note to add an idea.



Interactive Discussion - 3

- Use three round stickers to vote for the ideas that:
 - Will have the greatest impact, and
 - Have a high probability of success.
- Each sticker is one vote.
- You get three votes on each poster:
 - You can put all three votes on one idea,
 - Vote twice for one idea and one vote for another, or
 - Vote for three different ideas – one each.



Wrap-Up

- Report out from each Sector:
 - What new ideas were generated?
 - Which ideas received the most votes?
- Group Discussion:
 - Which Sectors are the most important to achieving the Overall Sustainability Goal?
 - Which specific ideas do you think will have the greatest impact and greatest probability of success?



Next Steps

- Reach out to stakeholder groups to identify existing plans, goals, and relevant projects.
- Assess gaps and identify projects to fill those gaps.
- Assess potential projects and select those that would provide the greatest benefit to the town.
- Promote selected projects to Town Boards, staff, businesses and residents – as appropriate.
- Monitor and report progress.
- Improve the process.
- REPEAT!



Program Assessment

Program Impact *(and description of “High Performance”)*

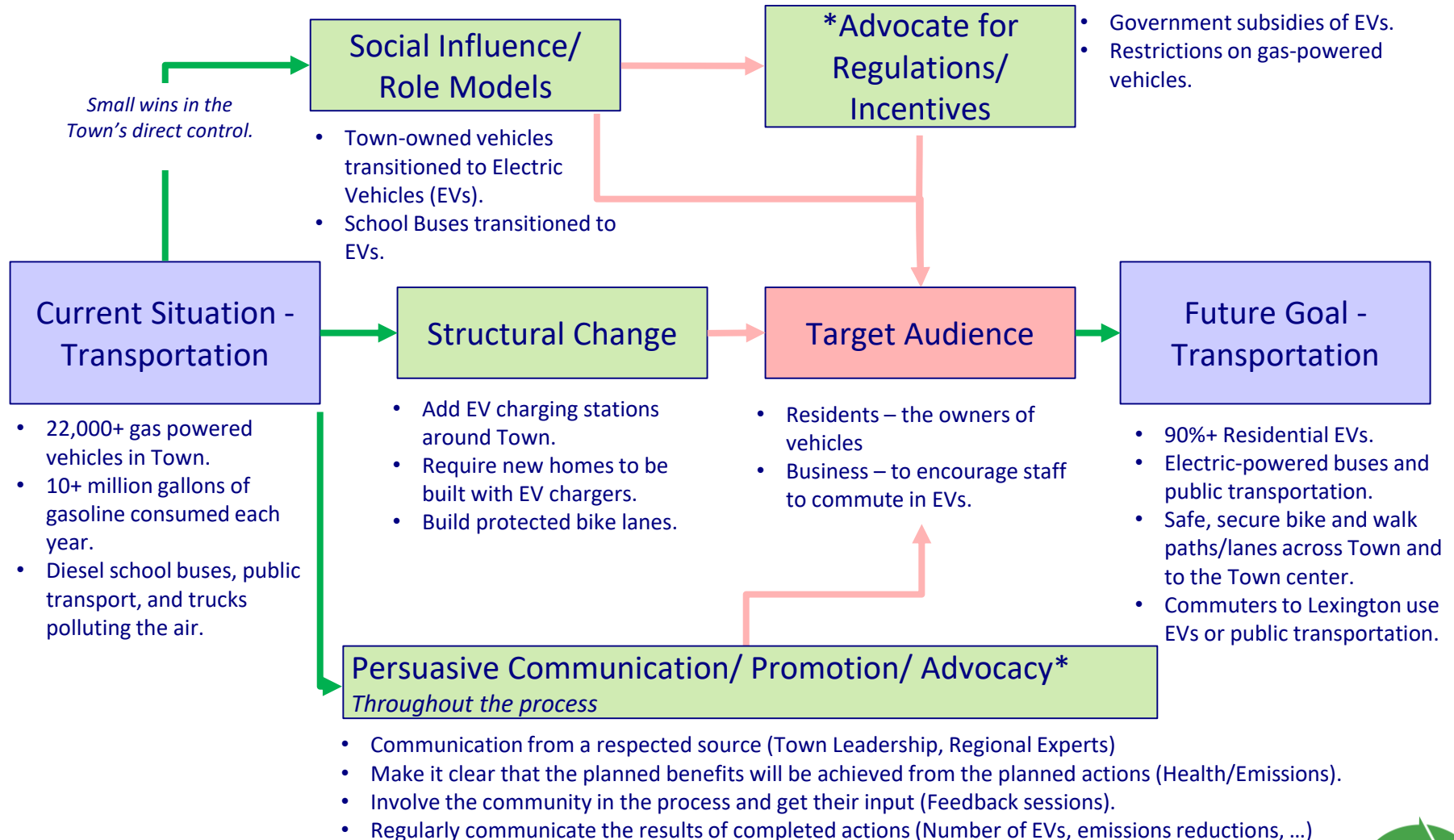
Environment	Program would reduce the Town’s total CO ₂ e GHG emissions by more than 3%.
Resilience	Program would prevent the loss of essential services or the occurrence of negative impacts from climate change and severe weather.
Health and Wellness	Program’s primary goal is to improve the health and wellbeing of residents, staff, and visitors.
Economics	The program represents a net overall economic benefit to the town.

Probability of Success *(and description of “High Performance”)*

Town Control	The Town has full control over the implementation of the program.
Implementation	Once the program is implemented, the objective will be achieved (little to no maintenance of the program is required).
Effectiveness	There is little doubt that the program will achieve its objectives once implemented.



Sector Roadmaps - Example



Sector Goals and Teams

Sector	Goals	Team Members
Public Safety and Emergency Preparedness	Ensure the health and safety of residents during extreme temperatures and weather conditions, with the goal of being able to provide essential services to residents throughout a 10-day disruption.	Celis Brisbin ^{SEP} , Rick Reibstein ^{SEP} , Dan Voss
Buildings	Build and maintain municipal, residential, and commercial buildings to achieve low GHG emissions, energy efficiency, resilience to extreme weather, and healthy indoor environments.	Celis Brisbin ^{SEP} , Paul Chernick ^{SEP} , Dan Voss
Energy	Source and generate energy from zero or low GHG emission sources and encourage energy efficiency with the ultimate goal of zero net GHG emissions.	Celis Brisbin ^{SEP} , Paul Chernick ^{SEP} , Dan Voss
Water	Ensure continued access to potable water and establish storm water infrastructure to limit the impact of extreme weather.	Marcia Gens ^{SEP} , Todd Rhodes ^{SEP} , Charlie Wyman
Transportation	Establish infrastructure and programs to support walking, biking, and public transportation within the Town and support the use of low-GHG emission vehicles.	Todd Rhodes
Food	Ensure continued access to nutritious food for residents and promote foods with a low carbon footprint. Support education efforts about the benefits of growing local and organic food and sequestering carbon in our soils. Promote programs to reduce food waste and support the adoption of curbside composting programs.	Paul Chernick ^{SEP} , Marcia Gens
Toxics and Waste	Establish programs to reduce the use of toxic materials and the generation of waste, and to dispose of waste using low-GHG emission methods. Reduce the use of pesticides, herbicides and fertilizer that pollute our waterways and damage the microbial health of our soils.	Marcia Gens ^{SEP} , Rick Reibstein ^{SEP} , Charlie Wyman
Land Use and Natural Environment	Maintain and expand the Town's conservation lands and natural areas to provide a carbon-sink, control flooding, and provide residents with a healthy environment in which to live.	Marcia Gens ^{SEP} , Charlie Wyman
Public Health	Ensure that risks to public health associated with rising temperatures and extreme weather are identified and mitigated.	Rick Reibstein
Economy	Establish policies and programs to promote a diversified local economy that is more resilient to economic downturns and retain and expand business to provide local sources of goods and employment opportunities to residents and non-residents, including policies and programs that consider the Town's position as a neighbor to towns and cities that are facing the effects of climate change. Create new models to finance improvements and manage risks. Protect the community from energy price shocks.	Todd Rhodes



Thank you!



Resilience Priorities

Survival manuals remind us of the “Rule of Threes”:

3 minutes without air

- Indoor air quality
- Pollution from burning fuel
- Oxygen (in-home patients during a power outage)

3 hours without shelter

- Cooling in the summer
- Heat in the winter
- Flooding

3 days without water

- Access to potable water

3 weeks without food

- Emergency supplies



Planning Approach

- Engage with stakeholders
- Focus on priorities and best practices
- Identify gaps and programs to fill those gaps
- Advise Board of Selectmen on priority areas/projects based on their expected impact and likelihood of success
- Assemble Task Force for implementation (as appropriate)
- Monitor progress against goals and project objectives
- Annual report to Board of Selectmen
- Improve the process



Directions

Sector Name	
<ul style="list-style-type: none">• Idea 1 ● ●• Idea 2• Idea 3 ● ● ●• Idea 4	
<ul style="list-style-type: none">• Idea 5• Idea 6 ● ● ● ● ● ● ● ●• Idea 7• Idea 8 ●	
New Idea 1 ● ●	New Idea 4 ● ●
New Idea 2	New Idea 5
New Idea 3	New Idea 6

Once you've reviewed the ideas, help us prioritize the list.

- Review the goals, background, and previous ideas.
- Write any New Ideas on a large Post-It note and add it to the flip chart.
- Then, take 3 stickers to vote for the ideas that:
 - Will have the greatest impact, and
 - Have a high probability of success.
- Put 3 stickers on one idea, go 2 and 1, or put 1 on three different ideas.



Public Safety and Emergency Preparedness

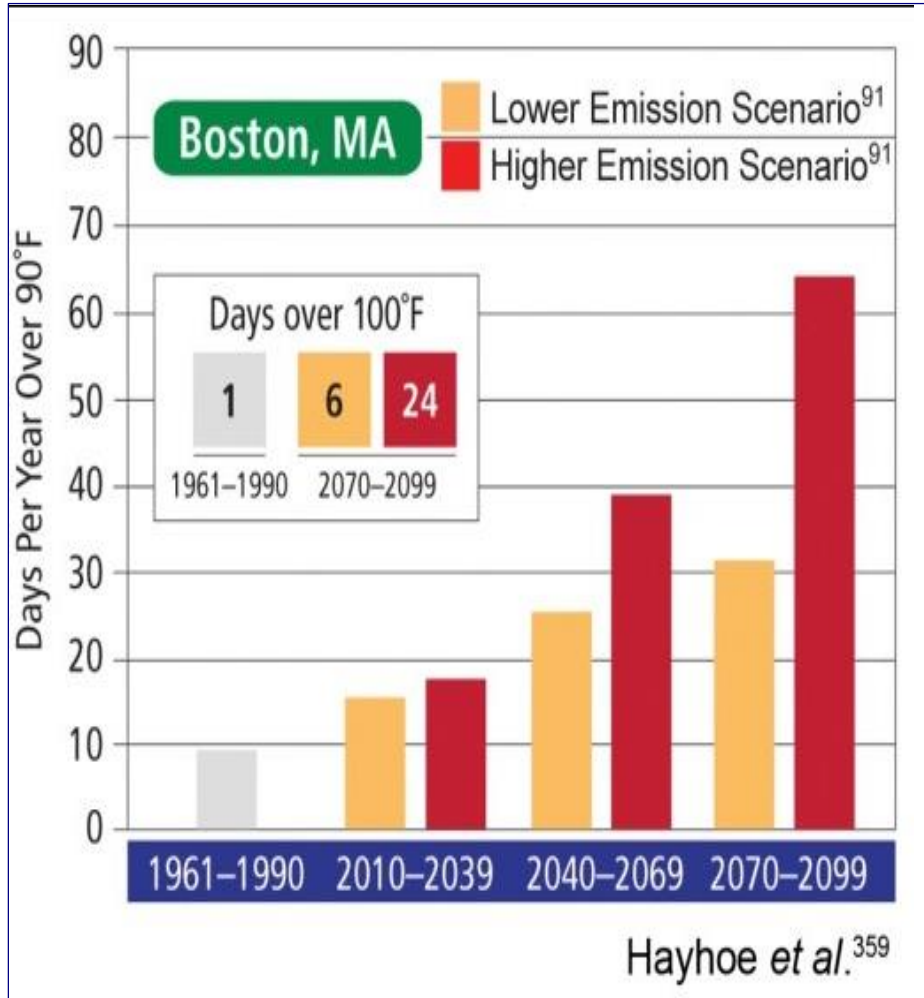


Public Safety & Emergency Preparedness - Goal

Ensure the health and safety of residents during extreme temperatures and weather conditions, with the goal of being able to provide essential services throughout a 10-day disruption.



Overall Goal: Resume all critical services ASAP after an extreme event



Extreme Event Scenarios:

- Power grid disruption
- Gas system disruption
- Micro bursts / tornado
- Ice storm
- Heat Wave
- Polar Vortex

Response:

- Energy hardening
- Robust Communication
- Resilient Shelters



Vulnerabilities

- Power Outages
 - Gas Disruption
 - Food and Water
 - Contamination
 - Extreme heat/cold
 - Shelter/displacement
-likely a combination of the above.....



Emergency Preparedness: Ideas

- **Incorporate “scenarios” into formal planning processes. i.e. assess the resilience of current services under different events.**
- **Model stormwater system – identify chokepoints – develop solutions for stormwater detention / flood storage.**
- **Identify flood vulnerable buildings and homes and engage in preventative planning.**
- **Inspect facilities with chem/haz waste storage for security from flood, high winds, electrical storm, fire.**



Emergency Preparedness: Ideas

*****Top priorities as
designated by forum
attendees**

- **Evaluate opportunity to strengthen / underground electrical utilities.**
- *****Establish Microgrids utilizing storage on neighborhood and town wide basis to enhance resilience / reduce costs. (2 votes)**
- **Contingency plan for disruption to MWRA water supply / local distribution system.**
- *****Plan for rapid response to gas system failure. (2 votes)**



Emergency Preparedness: Ideas

*****Top priorities as
designated by forum
attendees**

- *****Identify vulnerable populations needing assistance under specific events – enhance communication. (2 votes)**
- **Communicate Towns “Comprehensive Shelter Plan” and test under different event scenarios**
- **Install a road weather information system for improved municipal services.**
- **Assess ability of homes to move to space heat and electrical cooktops in the event of gas outage (wiring / service capacity)**



Emergency Preparedness: Ideas Added by Forum Attendees

*****Top priorities as designated by forum attendees**

- *****Plan to transition overhead wiring to underground. (7 votes)**



Buildings



Better Buildings - Goal

Build and maintain municipal, residential, and commercial buildings to achieve low GHG emissions, energy efficiency, resilience to extreme weather, and healthy indoor environments.



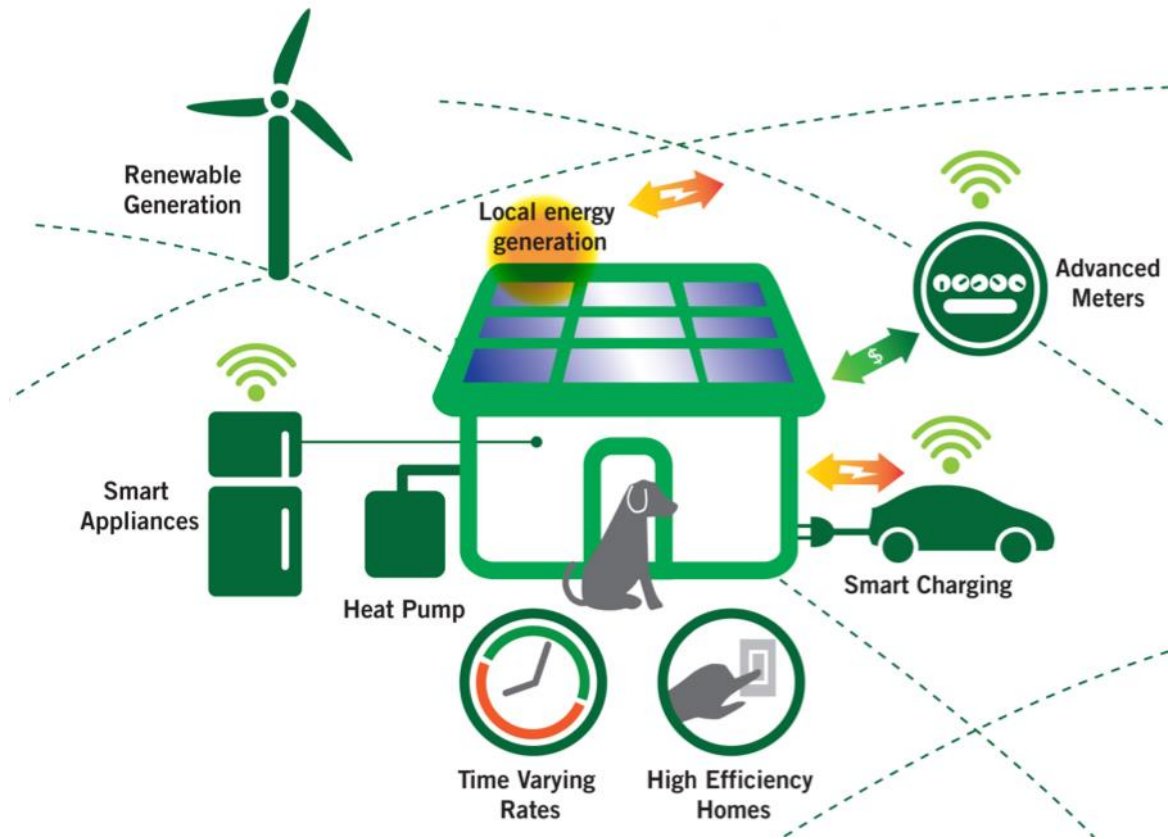
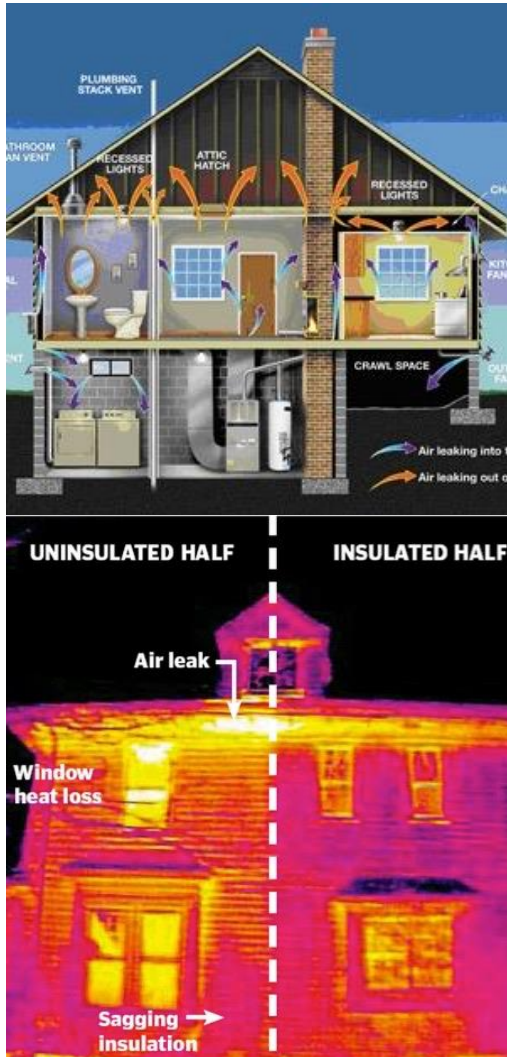
Better Buildings

10 Year Objectives	<ul style="list-style-type: none">• Reduce building's GHG emissions 25% against the baseline.• All new buildings fully resilient to climate change impacts.• 50% heating systems switch from fossil fuels to heat pumps• 10% of all buildings generating renewable energy onsite
3 Year Actions	<ul style="list-style-type: none">• Green Historic Building Guidelines with HDC approval.• First net zero new home built in Lexington.• First net zero deep energy retrofit completed in Lexington.• Energy benchmarking and performance rating system
Baseline Performance (2012)	<ul style="list-style-type: none">• Buildings are responsible for 63% of Lexington's GHG emissions or 635 million lbs. of CO₂e (including electricity emissions.)• Premature mortality rate due to heating Mass buildings with oil was 28/100,000 – 9 people in Lexington.



Better Buildings

Net Zero is achievable today !



Buildings - Ideas

- *Town Leads by Example!*
- **Achieve High Performance (Net Zero, High Health, Resilient) for Town Buildings:**
 - **For New Town buildings and renovations – use and improve the recent “Integrated Building Policy”: Police Station & High School.**
 - **Create the High Performance Operating Policy for all existing Town buildings – measure performance!**
- **Baseline HEALTH assessments in public buildings!**



Buildings - Ideas

*****Top priorities as designated by forum attendees**

- *Improve our standards*
- *****Drive commercial development to High Performance by driving our zoning by-laws to High Performance.....make Town expectations clear “upfront”. (4 votes)**
- **Charging Stations / onsite generation / resilience requirements.**
- *****Denser Net Zero housing along major roads / transport routes. (5 votes)**
- **Trial “Building Performance Measurement” with Town facilities....sort out the bugs....require it of commercial facilities.**



Buildings - Ideas

*****Top priorities as designated by forum attendees**

- *Make it easier to be a High Performer!*
 - Update Website to provide easily understood guide to High Performing buildings – what can individuals do?
 - *****Work with HDC to develop “balanced” solutions for homes in the Historic District. (10 votes)**
 - Make it more affordable – Drive adoption of “PACE” financing. Allows property owners to use low cost government money....and pay it back through taxes over time.
 - Offer up “Town” solutions -> Community Choice energy buying (continue it).....Town sponsored “Community Solar”
 - Sponsor “aggregate / group buying” programs for simple things....like air source heat pumps / solar / insulation.....
 - Transitioning of oil burning homes to electric – simplify it!



Buildings - Ideas Added by Forum Attendees

*****Top priorities as
designated by forum
attendees**

- **More education and outreach to realtors, developers, contractors, architects and home owners about alternatives to oil/propane/natural gas and benefits of insulation and heat pumps vs. windows and efficient boilers.**
- *****Update bylaws to require commercial and multi-family development to install solar panels (as did Watertown). (20 votes)**
- **Encourage more energy conservation in all buildings. Sense that many town buildings/fields have lights and other electric equipment on when not in use.**



Energy



Energy - Goal

Source and generate energy from zero or low GHG emission sources and encourage energy efficiency with the ultimate goal of zero net GHG emissions.

(Increase Lexington long and short term energy resilience through lower consumption, reduced interruption, clean production and lower “total” cost. Electricity is responsible for 40% of Lexington’s GHG emissions.)

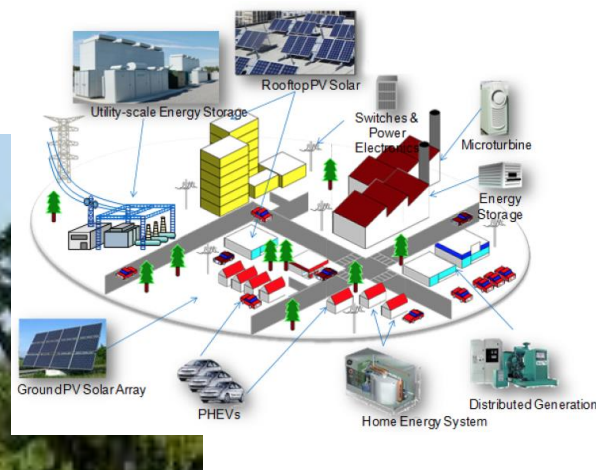


Energy

10 Year Objectives	<ul style="list-style-type: none">• Municipal energy resilience rating of >90% under 10d outage.• Town planning incorporates energy resilience criteria.• 25% reduction in municipal energy consumption.• 25% reduction in GHG emissions against baseline.
3 Year Actions	<ul style="list-style-type: none">• E-Efficiency / resilience included in planning of town buildings.• First net zero new home built in Lexington.• Increase local renewable production from []% to []%.• Expand access to alternative energy purchase options.
Baseline Performance (2012)	<ul style="list-style-type: none">• Municipal energy consumption approx. [] GJ annually, x /capita v. state average of []GJ/capita.• 2012 GHG emissions of 404 million lb. of CO₂e.• Local renewables represent []% of electricity demand.• Resilience likely in the 70% range based on general norms.



Energy Resilience - Survivability



Energy

***Top priorities as
designated by forum
attendees

-
- Town Leadership by Example – Lexington “home of the energy revolution”:
 - **Integrate Energy Goals into Police Station and planning for High School.**
 - **NET ZERO for all new Town buildings and major renovations**
 - **Create operating policy for existing Town Buildings to drive the replacement of fossil systems and the addition of solar + storage.**
 - *****Target Town owned carparking areas for canopy solar, storage and charging stations. (4 votes)**
 - **Trial electric transport option – School Bus / Police Car / Mower**
 - *****Change permitting rules to require Net Zero for all new construction and large renovations (14 votes)**
 - *****Eliminate new gas hook ups / further expansion of system (7 votes)**



Energy

- Buildings: Make it easier / clearer for property owners!
- Fresh “how to” website to guide residents and business owners.
- Work with HDC to carve out “balanced” solar and building envelope solutions – create a guide.
- Update zoning regulations to allow for canopy style solar at commercial facilities / in car parks.
- Create “requirements” for commercial property development so Town objectives are clear and upfront.
- Help households calculate their own carbon footprint...a how to!



Energy

- Buying Options:

- **Continue “community aggregation” for Town residents – gives access to low cost clean energy for residents.**
- **Build a “Community Solar” facility on Town land and offer energy to residents.**
- **Advertise the availability of “PACE” solutions that allow property owners access to low cost financing for energy upgrades.**
- **Facilitate a buying group for residential solar (re-run “Solarize Lexington”) + electric home heating and cooling solutions.**

- Big Stuff:

- **Drive National Grid to “account” for gas (energy) losses in Lexington with metering on the inlets to the Town.**
- **Create “Resilient” energy backbone by connecting municipal buildings along bike path in a Micro Grid.**
- **Investigate pathway for undergrounding of pole based power and communication.**



Energy Ideas: Added by Forum Attendees

- **Update zoning/permitting to allow for land-based solar arrays on residential land.**



Water



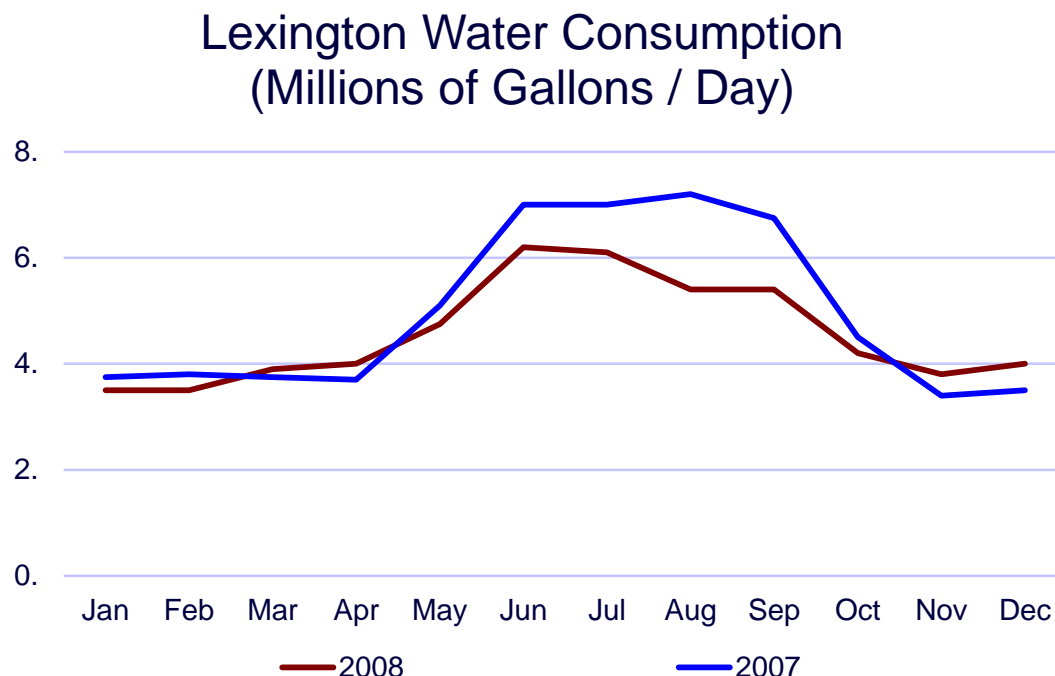
Water: Goal

Ensure continued access to potable water and establish storm water infrastructure to limit the impact of extreme weather.



Potable Water and Sewer

The Town of Lexington purchases approximately 1.5 billion gallons of water annually from MWRA – about 3.5 million gallons per day in the winter and up to 7.5 million gallons in the summer.



Yard irrigation causes significant water demand in the summer, reducing water pressure – affecting residents at higher elevations.



Stormwater

- **Culverts:** As precipitation events become more intense and less predictable, undersized culverts are expected to pose a greater threat of failure and flooding.
- **Infrastructure:** The Town's aging stormwater infrastructure exacerbates flooding potential during heavy rain.
- **Development/Impervious Surfaces:** Ongoing development in Lexington and a pattern of tearing down older homes to build larger ones has added to the amount of impervious area in the Town, which in turn has increased runoff and can increase flooding potential.
- **Stormwater Best Management Practices (BMPs):** Existing BMPs are frequently not maintained by private owners. This not only renders them ineffective, but also contributes to increased potential for flood events.
- **Environmental Impact:** Untreated stormwater can have significant environmental effects for tributaries receiving flows if that stormwater carries sediment loads, pathogens, or other pollutants of concern.

From Draft Lexington Hazard Mitigation Plan.



Potable Water: Ideas

- Infrastructure

- Establish program for testing/monitoring residential water quality at the home.
- Install water filling stations in Town to fill water bottles.
- Storm-hardening at sanitary sewer pump stations (HMP-3)

- Conservation

- Enforce irrigation restrictions in mornings to maintain line pressure.
- Educate residents on water conservation methods.
- Promote Home Energy Assessments so residents receive low-flow shower heads and faucet water-restrictors.
- Promote use of rain barrels for outdoor watering needs.
- Use “Gray Water” for irrigation and other “non-potable” uses.

- Resilience

- Establish agreement and infrastructure to pump water from Burlington during an MWRA disruption.



Stormwater: Ideas

***Top priorities as
designated by forum
attendees

- Residential
 - Residential green infrastructure solutions for stormwater management.
 - Educate residents on use of fertilizers to reduce stormwater pollution.
 - ***Evaluate regulations regarding tree removal and develop replacement performance standards for New Development (HMP-8) (8 votes)
 - Evaluate land use regulations for groundwater management for protection of groundwater and prohibition of groundwater pumping for development. (HMP-11)



Water: Ideas

- Infrastructure
 - Upgrade culverts and bridges (HMP-1)
 - Municipal green infrastructure solutions for stormwater management (HMP-2)
 - Turning Mill Pond Dam Condition Assessment; or consider removal (HMP-6/7)
 - Develop a list of privately owned stormwater infrastructure and inspect/ (possibly) maintain to ensure continued performance. (HMP-14)



Stormwater: Ideas : Added by Forum Attendees

*****Top priorities as
designated by forum
attendees**

- *****Work with MWRA to update EPA water quality standards (increase the standards for potable water) (6 votes)**
- **Encourage conversion of monoculture lawns to more natural gardens that need less watering**
- *****Restrict/end the use of 2nd water meters for irrigation systems (higher cost will promote conservation) (4 votes)**



Transportation



Transportation: Goal

Establish infrastructure and programs to support walking, biking, and public transportation within the Town and support the use of low-GHG emission vehicles.

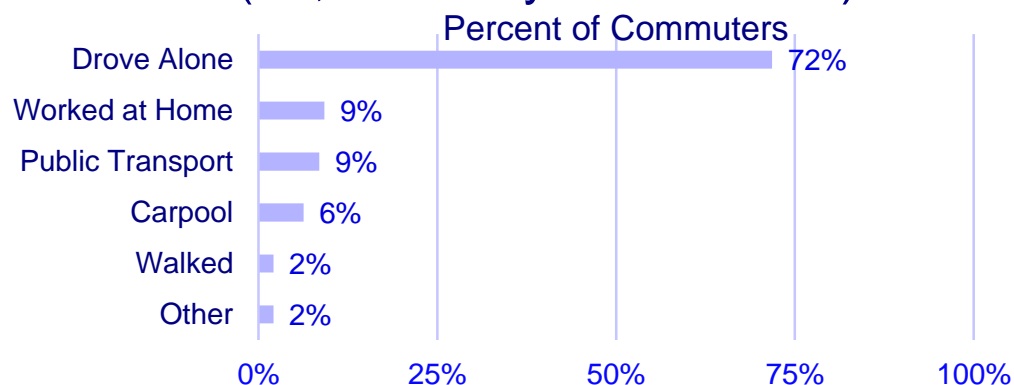


Transportation

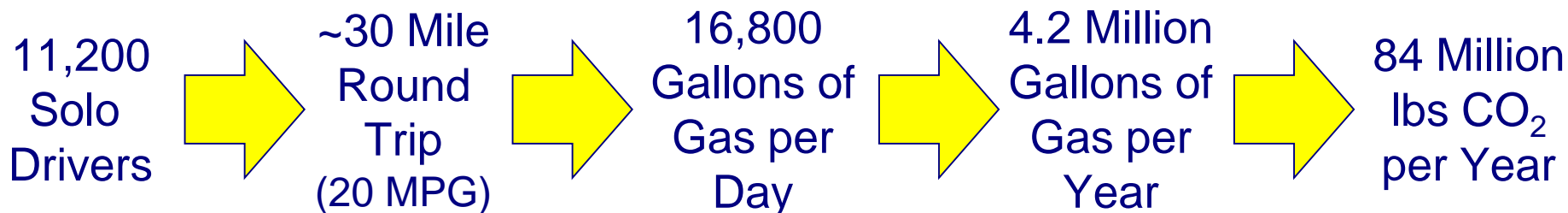


Transportation

Lexington Commuting – 2017 (15,637 Daily Commuters)



<https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk>



Transportation: Ideas

*****Top priorities as
designated by forum
attendees**

- *Town Transportation:*
 - *****Transition Town vehicles to Electric Vehicles. (4 votes)**
 - **Encourage Town employees to use public transportation.**
 - *****Electric school buses. (8 votes)**
 - **Electric MBTA buses.**
 - **Add commuters to reverse trip of METCO buses.**
- *“Last mile” Ideas:*
 - **Walkability Standards (to ensure walkable routes in Town).**
 - **Electric bicycle/scooter/other rentals (non-docking).**
 - **“Lexpress” pick-up / drop-off at your home.**



Transportation: Ideas

- Expand Lexpress Routes with Electric Buses
 - *****Transition Lexpress to Electric Vehicles. (6 votes)**
 - Improve schedule predictability and alignment with MBTA.
 - App to see bus location, request pick-up, and time to your stop.
 - Pick-up and dropping off at your home.
- New Routes:
 - After school - to other schools and key locations.
 - *****To train stations (Winchester, Woburn, Alewife, etc.) (5 votes)**
 - Add additional loops through Town.
 - Direct to Boston.
- Process Changes:
 - Integrate School/Municipal Budgets.
 - Annual transportation survey (residents/employees).
 - Change Town permitting to incentivize private partnerships.

***Top priorities as
designated by forum
attendees



Transportation: Ideas

- *Personal Electric Vehicle (EV) Ideas*
 - **Advocate for EV government subsidies.**
 - **Increase number of EV Charging Stations.**
 - **Require electrical wiring for EV charging in new homes and businesses.**
- *Bicycle/Walking Ideas*
 - **Protected bicycle lanes separate from car lanes.**
 - **Regional bikeway into Boston.**
- *Other Ideas*
 - **ZipCar parking spaces in town.**
 - **E-Parking (applications to find open parking spaces).**
 - **Improve amenities/accessibility at MBTA bus stops.**
 - **Improve marketing/promotion of public transportation.**



Transportation: Ideas Added by Forum Attendees

- *****Add dedicated bus lanes in heavy traffic areas (i.e. in Hartwell Ave expansion) to promote mass transit. (4 votes)**
 - *****Work with LPS to maximize the number of students who can walk to school. (6 votes)**
 - **Make Lexington part of a “Blue Zone”, which includes more walkable and bike-able towns for the goal of happier, healthier, longer lives.**
 - **Do not expand parking around fields, encourage carpooling.**
 - **Encourage 1-car households**
- ***Top priorities as designated by forum attendees**



Food



Food: Goals

- Plan for a secure food supply in case of emergencies
- Improve access and use of sustainably grown/regional food and promote a low carbon diet
- Promote carbon sequestration in soil through use of compost and regenerative agricultural practices.



Food: Background

- Food accounts for at least 10%, of Lexington's GHG emissions, 17% including food prep and transportation.
- 30-40% of food in the U.S. is wasted, representing a huge loss in the energy and water used to grow those foods.
- Regenerative farming practices enable atmospheric carbon to be sequestered in compost enriched soils.

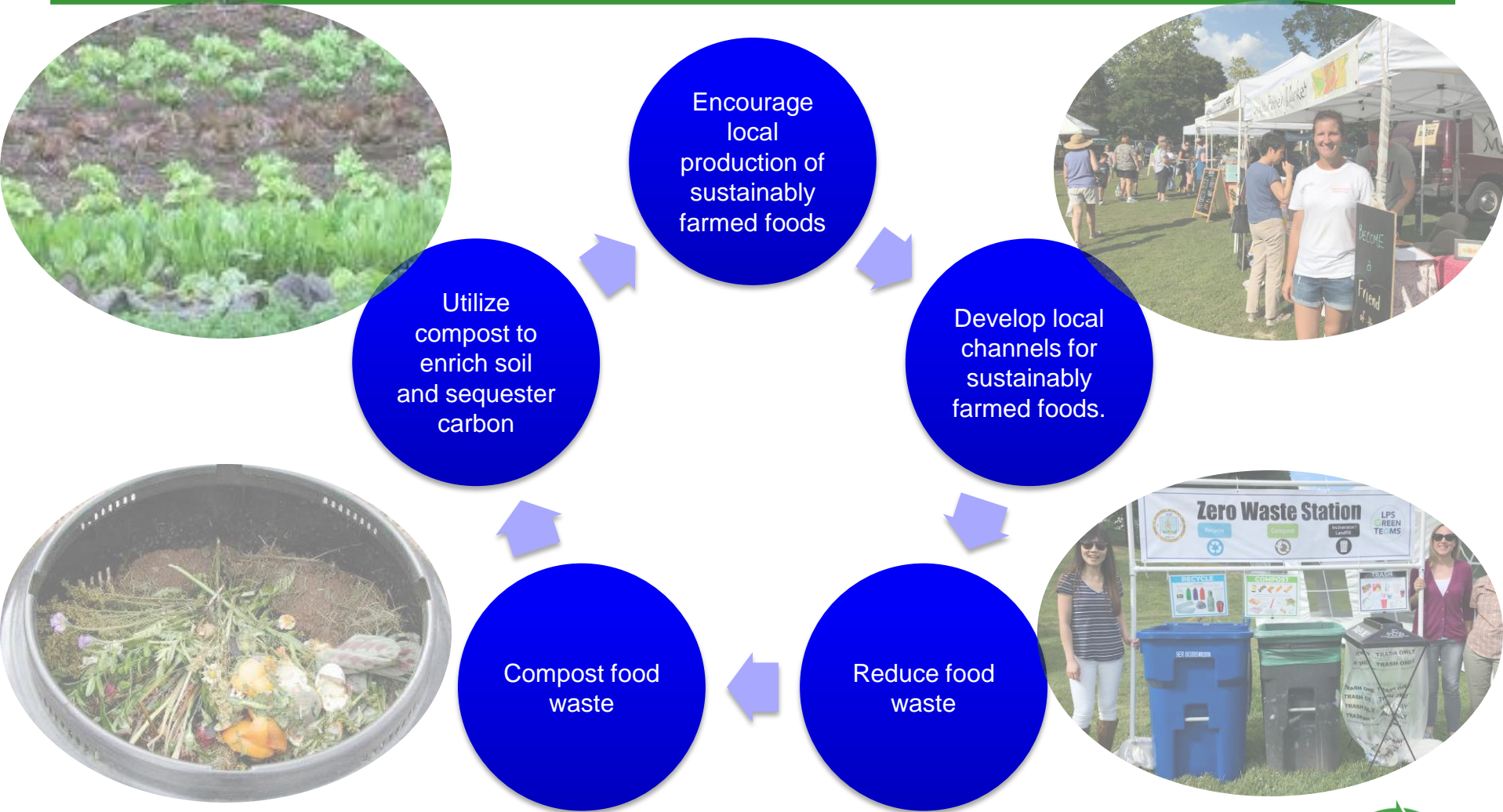


Food: Background

- Regeneratively farmed soils are high in organic matter that absorbs more water and mitigates both drought and flooding.
- Local and regional agriculture makes our town more resilient and improves the local economy.
- Eating more plants and less meat is a powerful way we can reduce our carbon footprint.



Food: Background



Food: Ideas

***Top priorities as designated by forum attendees

- Ensure continued access to nutritious food for residents in an emergency
 - Lexington Fire Department hosts emergency management plan, links found on town web page.
 - The Town could consult with local food vendors to assess their emergency planning for supply chain/electricity.
- Encourage local production of sustainably farmed foods
 - Support Lexington Community Farm by extending lease and investing in needed infrastructure.
 - Support local farms use of regenerative farming principles.
 - Expand school food gardens and allow produce to be used in school lunch program
 - ***Improve pollinator habitat by encouraging organic/native yard and garden care and food production. (5 votes)



Food: Ideas

***Top priorities as
designated by forum
attendees

- Reduce food waste and increase residential food waste composting
- **Support LPS Food Recovery Program, currently being piloted in Diamond Middle school and *expand* it to all schools**
- *****Institute residential curbside composting town wide.** Almost 1,000 households are paying to have their compost picked up by Black Earth Compost, diverting ~8-10lbs per household per week. (10 votes)
- Develop channels for food produced locally and sustainably
- **Promote Lexington Farmers Market with adequate site and parking**
- *****Support development of local non-profit food Co-operative. (7 votes)**
- **“Buy Local” campaigns**
- Encourage adoption of low carbon diet through outreach and education
- **“Meatless Monday’s” initiative for school lunches**
- **Vegetarian options offered at all school meals**
- **Join national food waste reduction program**



Food: Ideas Added by Forum Attendees

- Encourage adoption of low carbon diet through outreach and education
 - **Encourage vegetarian/vegan diets and try to attract more vegetarian/vegan restaurants to town.**
- **Make Lexington part of a “Blue Zone”, which includes encouraging healthy eating and the increased availability of health food choices for the goal of happier, healthier, longer lives.**



Toxics and Waste



Toxics & Waste: Goals

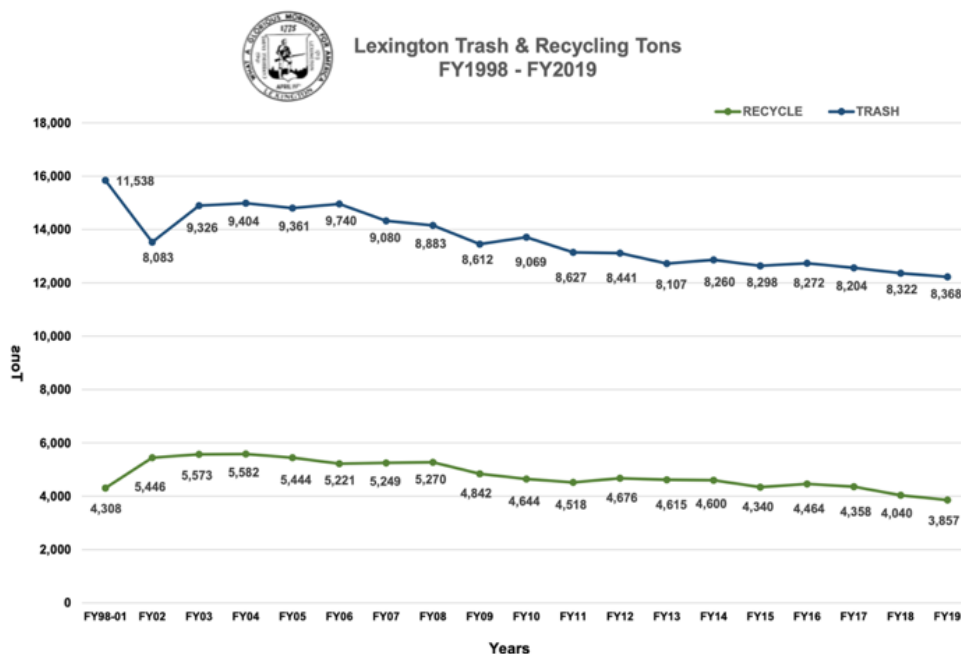
Establish programs to:

1. Reduce the generation of solid and hazardous waste.
2. Increase quality of recycling and encourage movement toward a zero waste economy.
3. Dispose of waste properly in ways that minimizes GHG emissions and destruction of valuable resources.



Toxics & Waste: Background

- Lexington Creates ~8,300 tons (3/4 ton per household) of trash per year that is incinerated, and recycles ~3,800 tons (1/3 ton per household) per year at an annual cost of ~\$2.5M.
- In recent years, recycling markets have been disrupted leading to a sharp decline in what is able to be recycled and an increase in cost.
- Massachusetts is running out of room in its landfills, including for incinerator ash, leading to sharp increases in price for trash disposal state-wide.



- In 2019, the Sustainable Lexington Committee formed a Waste Reduction Task Force with the goal of reducing waste overall, addressing recycling issues, and promoting residential composting.



Toxics & Waste: Background

- 30 - 50% of residential trash is organics/food waste (by weight).
- LPS Green Teams partnership with LPS has resulted in a robust recycling and food waste diversion program in all schools, reducing trash from the lunchroom and kitchen by ~85% (~**200 tons** of food waste diverted per school year).
- LPS food waste diversion program has led to a low-priced residential curbside composting program offered by Black Earth Compost currently serving just under 1,000 households in Lexington.
- Estimated that ~10% of Lexington residents compost (includes curbside and backyard composting).



Toxics & Waste: Ideas

Waste Reduction

*****Top priorities as designated by forum attendees**

- Continued and increased resident and business community education
- Institute "SMART" program for solid waste, fee per volume produced
- Reduce curbside solid waste allowances, currently 6 barrel/week limit
- *****Increase options for recycling drop-off at Hartwell (electronics, glass, office paper, ...) (6 votes)**
- Increased availability of water filling stations on town properties to reduce need for single-use bottles
- Recognition for town businesses/organizations that are leaders in waste reduction
- *****Determine/communicate where our recycling ends up (8 votes)**



Toxics & Waste: Ideas

*****Top priorities as
designated by forum
attendees**

- Toxics Waste Reduction
 - Determine baseline on how much hazardous waste is being improperly disposed
 - Promote programs to capture hazardous waste in addition to current hazardous waste collections at Hartwell
- Organics Diversion
 - Continued and increased resident and business community education
 - *****Town-wide organic/food waste pickup (10 votes)**
 - Subsidized residential organic/food waste pickup
 - Town-sponsored special event pickup program (fee based?)
 - With organic/food waste pickup each week, trash pickup can be reduced to every other week



Toxics & Waste: Ideas Added by Forum Attendees

*****Top priorities as
designated by forum
attendees**

- Help Post Office with ways to not have to deliver junk mail
- *****Bring back PAYT (14 votes)**
- Deposits on plastic water bottles
- Enforce Waste regulations (no plastic bags in recycling)
- Enforce MA Food Waste Ban on commercial facilities in town
- Increase access to bulk compostable food ware for use by all town organizations
- Improve residents' access to packaging-free food and other consumables including bulk foods (cooperative)
- Encourage resource reduction (less Amazon deliveries)
- Find better/more markets for recyclables (paper, plastic bags, etc) and make recycling easier



Land Use and Natural Environment



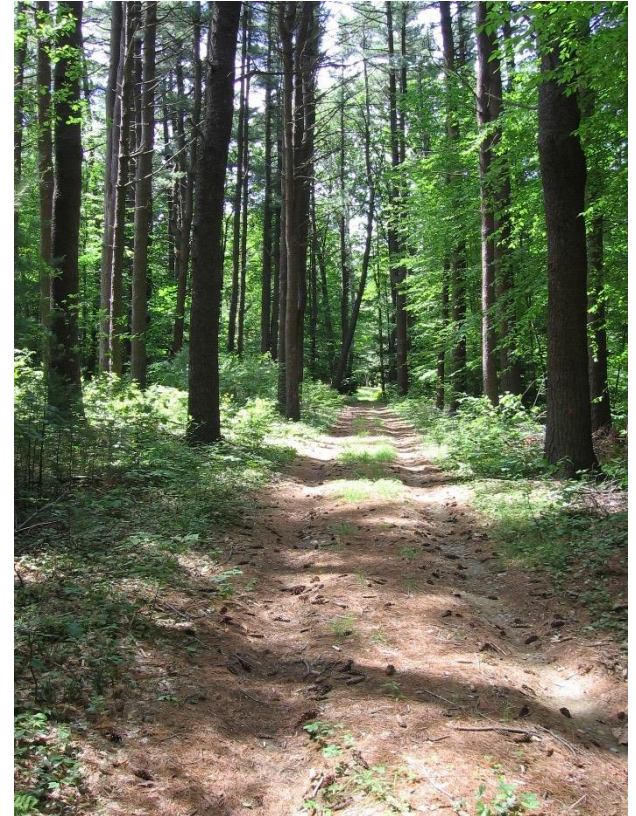
Land Use & Environment: Goal

Maintain and expand the Town's conservation lands and natural areas to provide a carbon-sink, control flooding, and provide residents with a healthy environment in which to live.



Land Use & Natural Environment

- Town of Lexington owns more than 1300 acres of conservation land -- forests, fields, and wetlands -- that provide important habitat for plants and wildlife, regulate water flows, absorb carbon and other pollutants, and add to the quality of life for Lexington residents through scenic and recreational opportunities.
- Much of Lexington is in suburban residential use, and many lots have lawns and gardens. Lawn management can require large inputs of water, fertilizer, and pesticides.



Land Use & Natural Environment

- Regenerative, organic practices can lead to substantial increases in carbon sequestration in soil (and other beneficial effects)
- Trees in developed communities have great value for cleaning air, ameliorating the heat island effect, improving infiltration, reducing stress and boosting overall well-being
- Natural gas leaks, among their other problems, can kill nearby trees
- Forests undisturbed for longer periods of time not only contain more carbon, but continue to sequester carbon at a higher rate than younger, managed forests



Land Use & Environment: Ideas

- Existing Municipal Conservation Land

***Top priorities as
designated by forum
attendees

- Manage land for carbon sequestration
- Manage land for resiliency, including ability to store or absorb floodwaters and preserve biodiversity

- Conservation Land Acquisition:

- Acquire strategic parcels, particularly those with carbon sequestration and resiliency benefits

- Urban Forest:

- ***Develop an Urban forest Management Plan (HMP-9) (9 votes)
- ***Review and strengthen tree removal by-law (7 votes)
- Develop a town-wide urban forest management plan
- Increase shade tree planting
- Fix natural gas leaks (which can kill trees)



Land Use & Environment: Ideas

- Suburban Land Use
 - Zoning to minimize conversion of undeveloped land
 - Educate residents on proper lawn care
 - Encourage conversion of monoculture lawns to natural vegetative carpets that require fewer inputs, through education and garden tours
 - Encourage production of food, including conversion of lawns to gardens and farms
 - Encourage use of rain gardens and other practices that slow runoff and promote infiltration
 - Educate residents on importance of pollinators and ways to encourage them



Land Use & Environment: Ideas Added by Forum Attendees

*****Top priorities as designated by forum attendees**

- *****Eliminate use of pesticides on Town lands and educate and encourage pesticide-free maintenance of residential land (5 votes)**
- **Assess/measure the CO2 sequestration of trees/open land in Lexington and communicate it as part of Net Zero goals**
- **Encourage the development of Net Zero single and multi-family residences that have a smaller footprint to increase the overall permeable/green/open space in town.**
- **Educate about and encourage bio-diversity**



Public Health



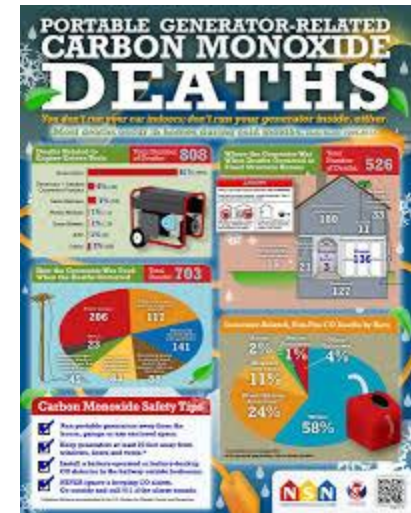
Public Health: Goal

Reduce risks to public health from indoor and outdoor air pollution, chemical exposures, water contaminants, infectious substances, and the consequences of rising temperatures and extreme weather.



Public Health: Background

- Chemical release risks from flooding, wind and lightning are increasing
- Power outages increase risks from improper use of generators
- Toxic exposures from ordinary products persist



Public Health: Risk of Exposure

- Gas powered leaf-blowers in one hour = smog driving car 100 to 200 miles + all the carcinogens in *breathing zone*.
- Using air fresheners *adds* burden instead of removing cause of odor.
- Integrated Pest Management instead of routine spraying.



Public Health: Ideas

- **Reducing Chemical Releases**

- Inspect outdoor and lower level hazardous waste storage, fuel and chemical storage sites to ensure they are “hardened” against rising climate change risks
- Educate homeowners on chemicals and household hazardous wastes stored in basements and garages
- Disseminate information on chemical and fuel alternatives
- Special focus on gas/oil management from lawn care and other equipment

- **Reducing Indoor Exposures**

- Educate residents about sources from products they buy
- Encourage Environmentally Preferable Purchasing: how to buy Green
- Encourage use of Green Building Constituents
- Educate concerning smart ventilation in the home
- Special focus on toxic insulation
- Conduct effort to ensure work is lead-safe



Public Health: Ideas

- **Pest control**

- Disseminate information about natural lawncare
- Qualify IPM contractors for business with town in grounds and structural pest control
- Free publicity for qualified services
- Informational events at library on low- or no-chemical methods

- **Toxics Use Reduction**

- Institute policies for town and school
- Assist companies and residents
- Solicit and publish toxics use reduction examples on town website
- Use state resources (Toxics Use Reduction, Office of Technical Assistance, MassDEP)
- Measure toxics use and progress in reduction, calculate savings



Public Health: Ideas

***Top priorities as
designated by forum
attendees

- Hold town-wide educational events about what to do in the event of an emergency (weather or infrastructure)
- Increase efforts to safely prevent harm from insect-borne diseases
- ***Develop and implement “green” and “red” list purchasing in buildings and product use (red = avoiding toxics, green = using safe alternatives) for town (6 votes)
- Establish green purchasing policies all town purchases
- Conduct baseline health assessments for Indoor Air Quality and water in all public buildings
- ***Restrict use of gas-powered leaf blowers and other lawn equipment (6 votes)
- Educate residents on safe operations of generators and battery alternatives
- Institute battery-powered energy storage for town operations



Public Health: Ideas Added by Forum Attendees

*****Top priorities as designated by forum attendees**

- *****Make Lexington part of a “Blue Zone”, which includes many different areas of improvement for the goal of happier, healthier, longer lives (better eating, moving, reduced stress, community connection) (6 votes)**
- *****Promote access to plant-rich foods and non-toxic household and personal care products via a non-profit cooperative run in Lexington (5 votes)**
- **Identify commercial and other properties that might have a higher concentration of pollutants/toxics**



Economy



Economy: Ideas Added by Forum Attendees

*****Top priorities as designated by forum attendees**

- *****Promote non-profit Cooperatives that would source low-waste products from local makers/vendors (5 votes)**
- **Use signage on buildings/lands to promote the environmental AND economic benefits of carbon reducing projects in town**



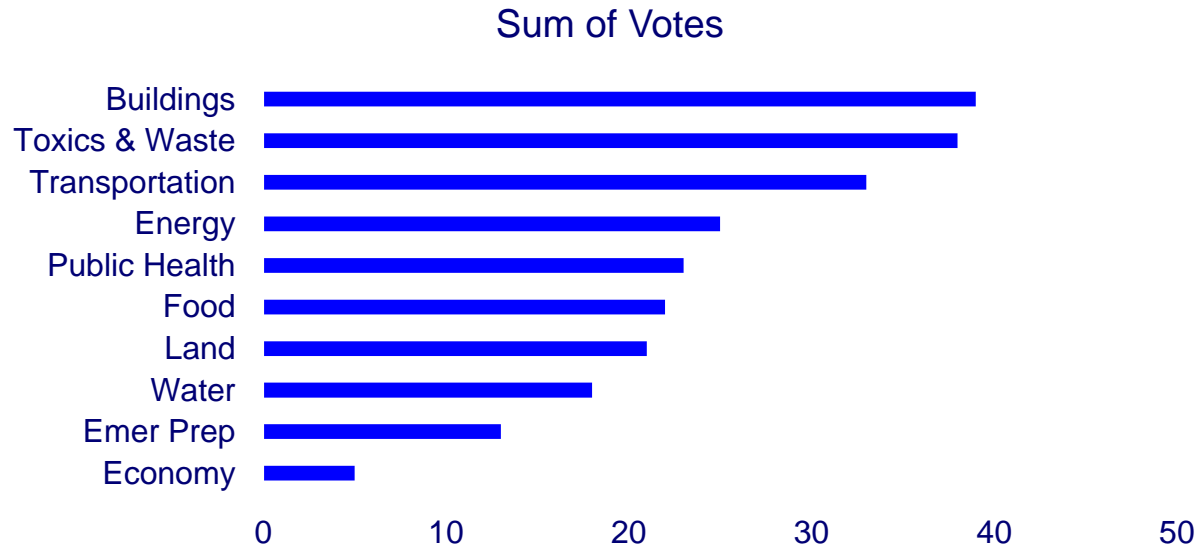
Summary of LWV Idea Prioritization Activity



Summary of Idea Prioritization

To gain a sense of the which sectors/ideas participants at the LWV event on Nov 1, 2019 felt should be a priority to the Town, participants were asked to “vote” for those ideas they felt were most important.

Of the 10 sectors, Buildings, Toxics & Waste, and Transportation received the most votes.



Note: This summary only reflects the opinions the participants at this one event. The count of votes is based on the number of votes given to the top ideas in each sector – not every vote. A more thorough assessment of potential impact and probability of success of the ideas is needed.



Summary of Idea Prioritization

Sector	Votes	Description
Buildings	20	•***Update bylaws to require commercial and multi-family development to install solar panels (as did Watertown). (20 votes)
Energy	14	•***Change permitting rules to require Net Zero for all new construction and large renovations (14 votes)
Waste	14	•***Bring back PAYT (14 votes)
Buildings	10	•***Work with HDC to develop “balanced” solutions for homes in the Historic District. (10 votes)
Food	10	•***Institute residential curbside composting town wide. Almost 1,000 households are paying to have their compost picked up by Black Earth Compost, diverting ~8-10lbs per household per week. (10 votes)
Waste	10	•***Town-wide organic/food waste pickup (10 votes)
Land	9	•***Develop an Urban forest Management Plan (HMP-9) (9 votes)
Water	8	•***Evaluate regulations regarding tree removal and develop replacement performance standards for New Development (HMP-8) (8 votes)
Trans	8	•***Electric school buses. (8 votes)
Waste	8	•***Determine/communicate where our recycling ends up (8 votes)
Em. Prep	7	•***Plan to transition overhead wiring to underground. (7 votes)
Energy	7	•***Eliminate new gas hook ups / further expansion of system (7 votes)
Food	7	•***Support development of local non-profit food Co-operative. (7 votes)
Land	7	•***Review and strengthen tree removal by-law (7 votes)
Water	6	•***Work with MWRA to update EPA water quality standards (increase the standards for potable water) (6 votes)
Trans	6	•***Transition Lexpress to Electric Vehicles. (6 votes)
Trans	6	•***Work with LPS to maximize the number of students who can walk to school. (6 votes)
Waste	6	•***Increase options for recycling drop-off at Hartwell (electronics, glass, office paper, ...) (6 votes)
Public Health	6	•***Develop and implement “green” and “red” list purchasing in buildings and product use (red = avoiding toxics, green = using safe alternatives) for town (6 votes)
Public Health	6	•***Restrict use of gas-powered leaf blowers and other lawn equipment (6 votes)



Summary of Idea Prioritization

Sector	Votes	Description
Public Health	6	•***Make Lexington part of a “Blue Zone”, which includes many different areas of improvement for the goal of happier, healthier, longer lives (better eating, moving, reduced stress, community connection) (6 votes)
Buildings	5	•***Denser Net Zero housing along major roads / transport routes. (5 votes)
Trans	5	•***To train stations (Winchester, Woburn, Alewife, etc.) (5 votes)
Food	5	•***Improve pollinator habitat by encouraging organic/native yard and garden care and food production. (5 votes)
Land	5	•***Eliminate use of pesticides on Town lands and educate and encourage pesticide-free maintenance of residential land (5 votes)
Public Health	5	•***Promote access to plant-rich foods and non-toxic household and personal care products via a non-profit cooperative run in Lexington (5 votes)
Economy	5	•***Promote non-profit Cooperatives that would source low-waste products from local makers/vendors (5 votes)
Buildings	4	•***Drive commercial development to High Performance by driving our zoning by-laws to High Performance.....make Town expectations clear “upfront”. (4 votes)
Energy	4	•***Target Town owned carparking areas for canopy solar, storage and charging stations. (4 votes)
Water	4	•***Restrict/end the use of 2nd water meters for irrigation systems (higher cost will promote conservation) (4 votes)
Trans	4	•***Transition Town vehicles to Electric Vehicles. (4 votes)
Trans	4	•***Add dedicated bus lanes in heavy traffic areas (i.e. in Hartwell Ave expansion) to promote mass transit. (4 votes)
Em. Prep	2	•***Establish Microgrids utilizing storage on neighborhood and town wide basis to enhance resilience / reduce costs. (2 votes)
Em. Prep	2	•***Plan for rapid response to gas system failure. (2 votes)
Em. Prep	2	•***Identify vulnerable populations needing assistance under specific events – enhance communication. (2 votes)

